

Chair with Attached Footrest for Putting on and Removing Footwear

Field of the Invention

This invention relates to chairs. More specifically, it relates to a chair with an attached, stationery footrest (located at a comfortable distance below the seat) to facilitate putting on and removing one's shoes. In addition, the chair provides for convenient storage of shoes and/or socks.

Background of the Invention

Many people have difficulty in putting on and removing their shoes because of the bending over that is required. This is especially true of the elderly, people who are significantly over-weight, people with back pain or stiffness, and people with other physical limitations or disabilities. Even those without physical problems would welcome the comfort and ease that this invention provides in the daily activity of putting on and removing their shoes. Children can also use this invention. Frequently, when small children put on shoes while sitting on a chair, they bring their feet onto the seating surface. With this invention, they can use the footrest to comfortably reach their feet.

As an added convenience, the storage compartment allow for one's shoes and/or socks to be ready-at-hand within the chair that the person uses to put on or remove his or her shoes.

Description of Prior Art

For the purpose of putting on and removing their shoes, people usually sit on a chair, bed, or other seating area in their bedroom (such as a bench, stool, trunk, or windowseat). Some people sit on the floor. Those who have homes with a stairwell in proximity to the room where they get dressed often sit on a stair and place their feet on the next step down, which is an easy-to-reach distance for putting on and removing their shoes.

There is currently no item of furniture with a stationary, attached footrest designed specifically for ease and comfort in putting on and taking off one's shoes. The prior art includes two examples of articles intended for this purpose, but these articles employ retractable footrests which are difficult to use by the elderly and others who have difficulty reaching their feet because of the bending over that is required. These inventions require the user to bend over and reach down, while already seated, in order to manually extend the footrest. To circumvent this problem, the present invention employs a stationary footrest which is attached to the front of the chair. While it provides ease and comfort for any user, it is specifically designed for those individuals who normally have difficulty in putting on and removing their shoes, and it thereby circumvents the shortcomings in the prior art.

The combined stool and retractable, single-foot footrest disclosed in United States Patent No. 6,145,931 issued to Subotic requires the user to sit down on a relatively low seat and then bend over to pull out the retractable footrest. Subotic included no arms to help users steady themselves in sitting down or to help the users

stand up. Moreover, the retractable footrest has a slanted shoe support which places one's foot at a difficult-to-reach angle.

The dressing chair disclosed in United States Patent No. 1,505,829 issued to Warnecke also has a retractable, single-foot footrest. Warnecke requires the user to bend over to pull out the footrest which positions one's foot at a difficult-to-reach angle.

The night stand disclosed in United States Patent No. 2,628,870 issued to Schultz is not designed, as a whole, for putting on and removing one's shoes, but it does include a retractable footrest and slanted foot support which can be used for this purpose. The seat portion is low, and without arms, and is difficult to use by the elderly and others who have difficulty putting on and removing shoes.

The footrest for chairs disclosed in United States Patent No. 155,016 issued to Eberhard has a retractable footrest which is close to the floor. Its purpose is for resting one's feet while sitting. The footrest is too close to the floor to make one's feet easy to reach for the purpose of putting on and removing one's shoes.

The adjustable chair disclosed in United States Patent No. 799,171 issued to Bartlett also has a retractable footrest which is close to the floor. Bartlett includes a slanted footrest for resting one's feet while sitting.

The footrests for chairs disclosed in United States Patent No. 155,524 issued to Lambert has a retractable footrest which extends out from directly below the seat. Its purpose is for stretching out and resting one's legs while sitting. Lambert could be used for putting on and removing shoes, but this would be difficult because

the angle of the footrest extends away from the user and because the footrest is much too close to the seat.

The combined stool and retractable footrest disclosed in United States Patent No. 2,607,946 issued to Price has a footrest which can be pulled out if the user wants a place to rest his feet while sitting on the stool. The footrest is too far below the stool top to easily reach one's shoes. Moreover, the user is required to first sit down and then bend over to retract the footrest.

The combined chair and apparel cabinet disclosed in United States Patent No. 4,165,124 issued to Olan has a footrest which can be pulled out from beneath the seat if the user wishes to extend his or her legs and have a place to rest his or her feet. Because the footrest is only a few inches below the seat, it would be awkward and uncomfortable to use it for putting on or removing one's shoes.

The stool and shoe receptacle disclosed in United States Patent No. 1,447,145 issued to Morrell consists of a stool and storage area for shoes underneath, but has no footrest for putting on or removing one's shoes.

The children's hamper with steps combined disclosed in United States Patent No. 2,658,640 issued to Bayles could be used for the purpose of putting on and removing one's shoes. However, it is not a chair with back and arms, and the hamper platform which could be used as a seat is low and thus difficult for the elderly or disabled to sit on and then get up again (especially with no arms to assist this process). To modify this hamper to approximate the present invention would not be obvious to a person having ordinary skill in the art (i.e., the art pertaining to children's hampers); that is, it

would not be obvious to modify a children's hamper to make it into a chair with an attached footrest with the features of the present invention which make this invention easy-to-use by people who have difficulty bending over to put on and remove their shoes.

The chair for children disclosed in United States Patent No. 794,461 issued to Mackey consists of two parts. The upper part is a rocking chair for children, and the lower part is a base which can also be used as a seat. When joined together, these parts make a high chair for children. The lower portion has a slidable drawer underneath the seat. It would be awkward to use this drawer as a footrest: the user would have to bend over and reach down to extend the drawer, and the drawer is open on the top and does not provide a flat surface to be used as a footrest (in other words, it is a drawer, not a footrest).

The footrest disclosed in United States Patent No. 1,051,656 issued to Whitaker consists of a low stool on wheels with a stationary footboard close to the floor and also featuring an angled footrest to be used on someone trying on new shoes in a shoe store. The footrest portion is angled so as to be used by a customer sitting opposite the stool; it is not used by the salesperson sitting on the stool. The angled footrest can be collapsed so as to rest horizontally in the footboard. Although Whitaker did not anticipate this use, the footboard could be used by the person sitting on the stool to put on or remove his or her own shoes. Such usage would be awkward as the footboard is close to the floor, making one's feet difficult to reach. Moreover, the device is a stool, not a chair; the seat is relatively low, and has no arms or

back. It would be extremely difficult and unsafe to be used by the elderly or disabled or putting on or removing shoes.

The combined trash receptacle and step stool disclosed in United States Patent No. 6,378,720 issued to Santa Cruz and Gittelman has a platform which could be used as a seat, and the retractable step stool could be used as a footrest. It is not a chair with a stationary footrest: it has no arms or back, and the step stool would have to be manually pulled out from underneath the "seat" to be used as a footrest.

The utility chair disclosed in United States Patent No. 2,765,025 issued to Bakalic et al contains drawers for storage underneath the seat, but does not contain a footrest. Nor could the drawers be used as a footrest because they extend out from the sides of the seat, not in front of the seat.

The footstool disclosed in United States Patent No. 1,052,750 issued to Phillips is designed as a footstool to be used in shoe stores. The user (i.e., a customer in a shoe store) sits opposite the footstool, which can then be used (by the customer or salesperson) to put on or remove the customer's shoes. A person could sit on the stool and use the angled footrest portion to put on or remove his or her's own shoes. However, this would be awkward and would require a difficult bending-over movement to reach one's shoes, as the footrest is angled in the wrong direction (i.e., away from the stool).

The multi-purpose chair disclosed in United States Patent No. 4,883,317 issued to Davenport consists of a seat with a retractable drawer underneath. To use the drawer as a footrest, it would have to be pulled out manually and the user would have to place his or her

feet on the top edge of the drawer front or sides. This would be awkward and uncomfortable. The drawer is a drawer; it is not designed as a footrest with a flat surface on which to put one's feet. Moreover, the chair has no arms to assist in sitting down and getting up.

Summary of the Invention

The present invention overcomes the problems associated with the prior art by incorporating five critical and essential elements into a single chair/footrest apparatus specifically designed to create ease-of-use and comfort in putting on and removing one's shoes. These five elements are:

1) The seat portion of the chair is higher than a normal chair in order to be easy to sit upon and get up again. This is a critical aspect as the chair is intended for the elderly and others who have difficulty in lowering themselves onto a chair of normal height and getting up from such chairs. While the seat of a normal chair is approximately 18" from the floor, the seat of the present invention is approximately 22" from the floor.

2) The arms of the present invention extend out from the back so that the front of the arms are over the front corners of the footrest. This is a critical aspect because the user stands facing away from the seat, and uses the arms to lower himself or herself onto the seat. In order for the user to easily hold onto the front of the arms, they must extend out to the position indicated.

3) The footrest is approximately 8" below the seat. This is a critical aspect because it positions the users feet, once lifted onto the footrest, at an easy-to-reach distance from the seat. If the footrest is

positioned closer to the seat, it makes it difficult for many users to lift their feet onto the footrest and requires an uncomfortable bending of one's legs at the knees. If the footrest is positioned closer to the floor, it requires a difficult bending-over motion to reach one's feet when placed on the footrest.

4) The footrest is attached to the front of the chair and is stationary. This is a critical aspect for two reasons. Because it is attached (as opposed to a separate component), the user does not need to first sit down and then, using his or her feet, move the footrest into position. A separate, non-attached footrest could also tip over or slide out of position. Because the footrest is stationary, the user is not required to bend over and pull out the footrest.

5) The footrest extends no more than 9" from the front of the chair. This is a critical aspect because the user stands facing away from the seat and then lowers himself or herself onto the seat, and the distance that the footrest extends from the chair determines how far the user will be standing from the seat. If the footrest extends more than 9", then it forces the user to stand too far from the seat and it makes sitting down difficult.

A prototype of this invention was tested (see below) with several elderly adults and it was determined that each of these five elements were critical in creating ease-of-use in lowering oneself down onto the chair (with the assistance of the arms), lifting one's feet onto the footrest, using the footrest to put on or remove one's shoes (one's feet being in an easy-to-reach position), and then using the arms to stand up from the seated position. In the prior art, there is no chair with an attached, stationary footrest which combines the

five elements described above. Thus, it is determined that the present invention offers a new and useful apparatus of special utility to those who have difficulty in the daily tasks of putting on or removing their shoes because of the bending over that is required.

To provide extra convenience, the present invention contains a storage compartment under the seat for one's shoes, socks, and/or foot apparel such as sandals or slippers. Thus, these items can be conveniently ready-at-hand within the storage compartment when a person uses the chair to put on his or her shoes. When the person uses the chair to remove his or her shoes, these can be conveniently put away in the storage compartment.

In designing the present invention, different versions were tested in order to determine the optimal height of the seat and positioning of the arms and footrest. Eleven individuals participated in this testing, including two children (ages 7 and 10) and five seniors over 65 years old. The testing proceeded as follows. First, the height of the seat was varied between 18" and 24", and it was determined that a height of 22" was optimal for most users. Second, different distances between the seat and footrest were employed in order to determine the most comfortable distance. The distances ranged between five inches to eleven inches. Some taller subjects preferred to have the footrest located at approximately ten inches below the seat, and some shorter subjects preferred to have the footrest located at approximately six inches below the seat. The average preferred distance was eight inches. Third, different dimensions of the footrest were tested. It was determined that the footrest should be at least 7" in depth in order to accommodate one's

foot, but that it should not be more than 9" in depth (as explained above).

Once these dimensions were determined, a prototype was made and used by the 11 subjects to put on their shoes. Each person found that the prototype facilitated this activity. The height of the seat and the position of the arms made it easy and comfortable for the testers to lower themselves onto to the seat. They then lifted their feet onto the footrest, which was now attached at the average preferred distance of eight inches below the seat. Each subject found, regardless of height or age, that this distance made it easy to reach their feet to put on and remove their shoes. The elderly testers expressed their appreciation of the fact that no bending over was required to reach their feet. All the subjects found that it was easy to stand up from the seated position because of the height of the seat and the design of the arms. The elderly noted that it was much easier than getting up from a normal chair.

Description of the Preferred Embodiment

Figure 1 shows the preferred embodiment of the combined chair and attached footrest. It has a seat 10, a footrest 12, and two side panels 14 and 14' (not shown). The seat is typically a rectangle 14" x 20" and the footrest is typically a rectangle 9" x 20." The footrest is typically 8" below the seat. Both the seat and footrest are supported by the side panels, each of which has a base 16 of approximately 20" and a back 18 of approximately 18." An upper face 20 extends below the front of the seat, at a 90° angle, to the back of the footrest 12 and is typically a rectangle 8" x 20." A lower

face 22 extends below the front of the footrest 12, at a 90° angle, to approximately 4" above the floor and is typically a rectangle 4" x 20." Two back posts 24 and 24' extend from the floor to approximately 20" above the seat 10. Two front posts 26 and 26' extend from the base and front of the side panels to approximately 12" above the footrest. Two front legs 28 and 28' extend from the floor to the base of the footrest. The two back posts 24 and 24' and the two front legs 28 and 28' must be of sufficient strength to support the chair and provide sufficient stability to preclude the chair from tipping. Two side arms 30 and 30' extend approximately 22" from the back posts (attached approximately 4" above the seat) and also attach to the top of the front posts. Three ladder-back supports 32, 32', and 32", each approximately 2 1/2" wide, are attached to the sides of the back posts as shown. (It is understood that the back may be of other forms, such as the multiple spindles of a Windsor chair, an upholstered cushion, or another conventional chair back form.) The seat 10, which sits on top of the side panels 14 and 14', is typically 22" from the floor. The seat 10 is secured to the back by two hinges (not shown) which enable the seat to be rotated open. Below the seat 10 is a storage compartment (not shown), the interior dimensions of which are typically 18" wide, 12" deep, and 16" in height. The dimensions cited above define the preferred embodiment of the present invention, which is suitable for an average-size adult.

It is understood, however, that these dimensions may be varied within a fairly wide range to suit the particular user or for stylistic purposes. For example, when the present invention is to be made for children, the height of the seat 10 would be lower and the

other dimensions would be adjusted accordingly. Conversely, if the present invention is to be made for adults of above-average size, the width of the seat 10 would be wider and the other dimensions would be adjusted accordingly.

It is understood that the present invention can be fabricated from any of numerous suitable materials. In the simplest construction, it may be constructed from sheets of plywood or other suitable sheet goods material such as oriented strand board, or medium density fiberboard or wood. Other suitable materials for the construction would include metals, polymers, and composites such as glass-filled polymers. The material selected for construction must have sufficient strength, rigidity and stiffness to support a user in the chair, and yet be sufficiently light weight so that the chair can be moved to a chosen location without undue stress to the user or use of additional moving equipment.

Although the present invention has been described above, and shown in figure 1, with reference to the preferred embodiment, workers skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention.